

IN THE CLAIMS:

1. (Currently Amended) An optical switch comprising:
a first substrate;
an input optical fiber input part in a predetermined region of attached to the first substrate;
an output optical fiber output part in a predetermined region of attached to the first substrate and positioned at a distance from the input optical fiber input part to face each other;
a first micro-mirror part attached to the first substrate and positioned between the input optical fiber input part and the output optical fiber output part, for reflecting a light from the input optical fiber input part; and,
a second micro-mirror part attached to the first substrate and positioned to reflect between the input optical fiber input part and the output optical fiber output part, at a distance from the first micro-mirror part to face each other for reflecting the light from the first micro-mirror part to the output optical fiber output part;
wherein at least two of the input optical fiber part, the output optical fiber part, the first micro-mirror part and the second micro-mirror part are mechanically coupled to respective alignment grooves formed in the first substrate.

2. (Currently Amended) An optical switch as claimed in claim 1, wherein the substrate has grooves of predetermined depths in the regions of the input and output optical fiber input/output parts, and the first, and second micro-mirror parts are each mechanically coupled to respective alignment grooves formed in the first substrate for fixing the optical fiber input/output parts, and the first, and second micro-mirror parts thereto.

AM
Cm

3. (Currently Amended) An optical switch as claimed in claim 2_1, wherein each of the groove has respective alignment grooves have upper sloped sides, and lower vertical sides, to form a 'Y'.

4. (Currently Amended) An optical switch as claimed in claim 2_1, wherein the at least two parts are mechanically coupled to the respective alignment grooves with groove has epoxy applied thereto, for fixing the optical fiber input/output parts, and the first, and second micro-mirror parts, thereto.

5. (Currently Amended) An optical switch as claimed in claim 2_1, wherein the first, and second micro-mirror parts are arranged to be at 45° to an optical path of the light from the input optical fiber input part.

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6. (Currently Amended) An optical switch as claimed in claim 1, wherein each of the input and output optical fiber input/output parts includes comprises a silicon-fiber support substrate, and a two dimensional array of a plurality of optical fibers fitted-coupled to the fiber support substrate, and each of the first; and second micro-mirror parts includes comprises a silicon-micro-mirror support substrate, and a two dimensional array of a plurality of micro-mirrors fitted-coupled to the micro-mirror support substrate.

7. (Currently Amended) An optical switch as claimed in claim 1, wherein the input and output optical fiber input/output parts are fitted-arranged in a parallel to each other arrangement as one bundle, to face so that the optical axis of the input and output optical fiber parts makes a 45° angle with respect to each of the first, and second micro-mirror parts at 45°.

8. (New) An optical switch as claimed in claim 6, wherein at least a portion of the fiber support and/or micro-mirror support substrate of each of the at least two parts is attached to a respective alignment groove.

9. (New) An optical switch as claimed in claim 7, wherein the input and output optical fiber parts are coupled to a common substrate.

10. (New) An optical switch as claimed in claim 9, wherein the common substrate is attached to an alignment groove formed in the first substrate.

11. (New) An optical switch comprising:

a first substrate;

an input fiber array supported by a first fiber support substrate;

an output fiber array supported by a second fiber support substrate;

a first micro-mirror array supported by a first micro-mirror support substrate, positioned to reflect light from the input fiber array; and

a second micro-mirror array supported by a second micro-mirror support substrate, positioned to reflect light from the first micro-mirror array towards the output fiber array;

wherein the first and second fiber support substrates, and the first and second micro-mirror support substrates are each supported on the first substrate by respective alignment grooves formed in the first substrate.
